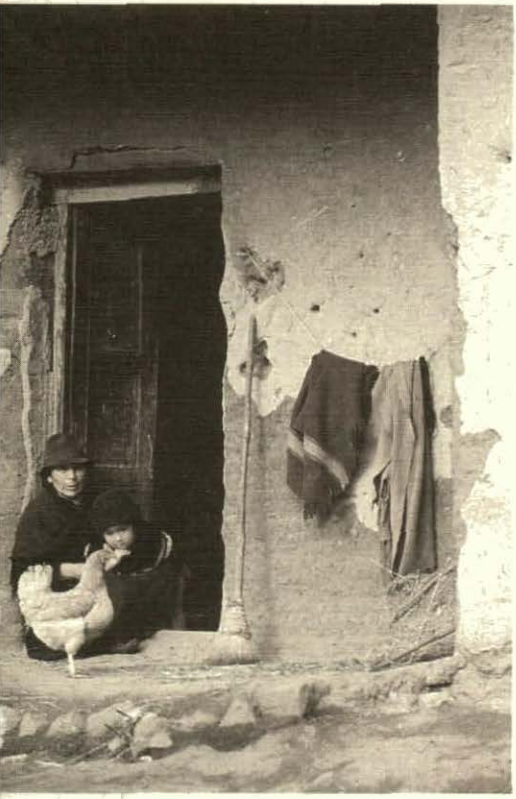
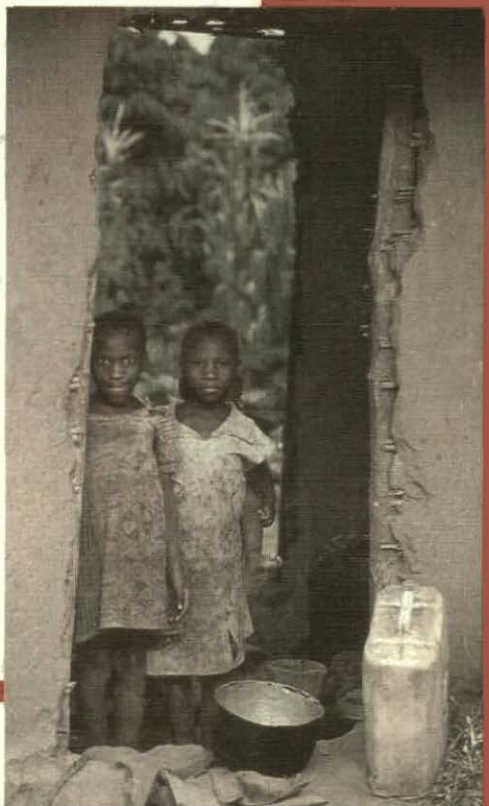
Denmark and CIAT

An alliance that works





de Agricultura Tropical
for Tropical Agriculture

Shared Commitments

In March of 1994, the Royal Danish Ministry of Foreign Affairs presented to the country's parliament a new "Strategy for Danish Development Policy Towards the Year 2000." The strategy builds on Denmark's strong social and humanitarian tradition and long history of international development cooperation, and it reflects the "strong commitment in [Danish] society to development cooperation."

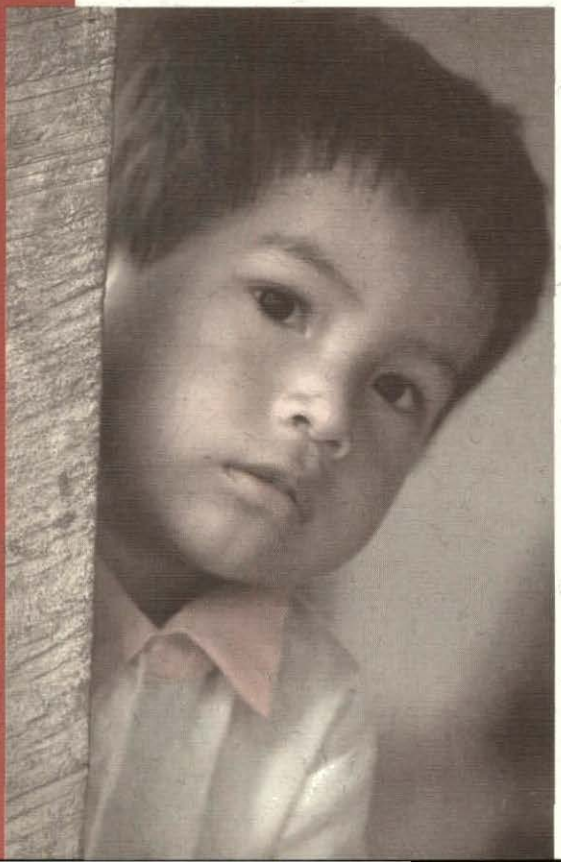
Denmark's poverty focus

The guiding principle of the strategy is "a commitment to the poorest, . . . the most vulnerable" people in the developing world. It notes that poverty contributes to other ills, including environmental degradation and social conflict. Recognizing the complexity and deep roots of these problems, the strategy commits Denmark to "international solidarity and closer international cooperation" in the search for sustainable solutions. It also stresses the need for a redoubled effort to lay the foundations for "economic growth and social equality" in sub-Saharan Africa.

To its focus on poverty alleviation, the strategy adds three "cross-cutting themes":

- Stronger role for women in development
- Environment
- Popular participation in decision making

In addition, it affirms the "principle that the overall volume of ODA be maintained at one percent of gross national product." The strategy thus both outlines the general directions and provides a strong financial basis for collaboration between Danish research and development agencies and the wide range of government and nongovernment organizations operating at the national and international levels in the developing world.

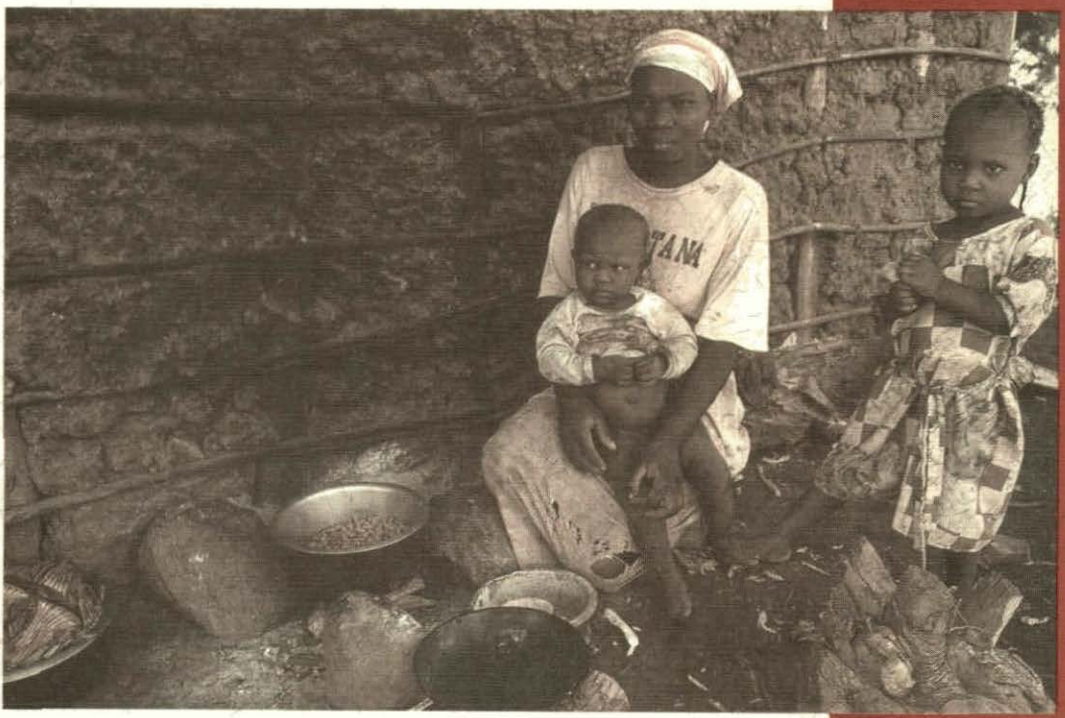


Julio C. Martinez

An overview of CIAT

During the same period in which the Ministry of Foreign Affairs was formulating its new strategy, the Danish International Development Agency (Danida) initiated support for the International Center for Tropical Agriculture (CIAT). There was a compelling logic in Danida's decision, based on commitments shared by the two institutions.

CIAT is a nonprofit, nongovernment research organization dedicated to alleviating hunger and poverty and preserving natural resources in developing countries. It is one of 16 centers sponsored by the Consultative Group on International Agricultural Research (CGIAR).



Nathan Russell

CIAT's Global Projection

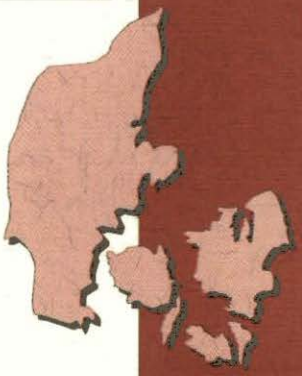
The Center has a solid record of achievement in research on four crops—beans, cassava, tropical forages, and rice—that are especially important for the poor. Improved technologies for these crops have strengthened basic food security, increased farm income, and helped address some environmental problems.

In the early 1990s, CIAT took up new research on the management of natural resources and is integrating this initiative with its work on crops. Our research is already generating information and methods that help local organizations develop more sustainable production systems and soil management technologies, as well as promote collective action for combating poverty and environmental

Luis F. Pino

degradation in rural communities. Some of our research products also better enable decision makers to design development policies and strategies.

While operating mainly in Latin America, the Center has a global projection, based on the relevance of improved germplasm and methods developed in our home region to other parts of the developing world. Currently, CIAT commits about a third of the funds it receives from donors to research for sub-Saharan Africa and Southeast Asia. Our work on beans and cassava for Africa is oriented to women in particular, since they are mainly responsible for producing, processing, and marketing these crops.



Forms of Danish Support

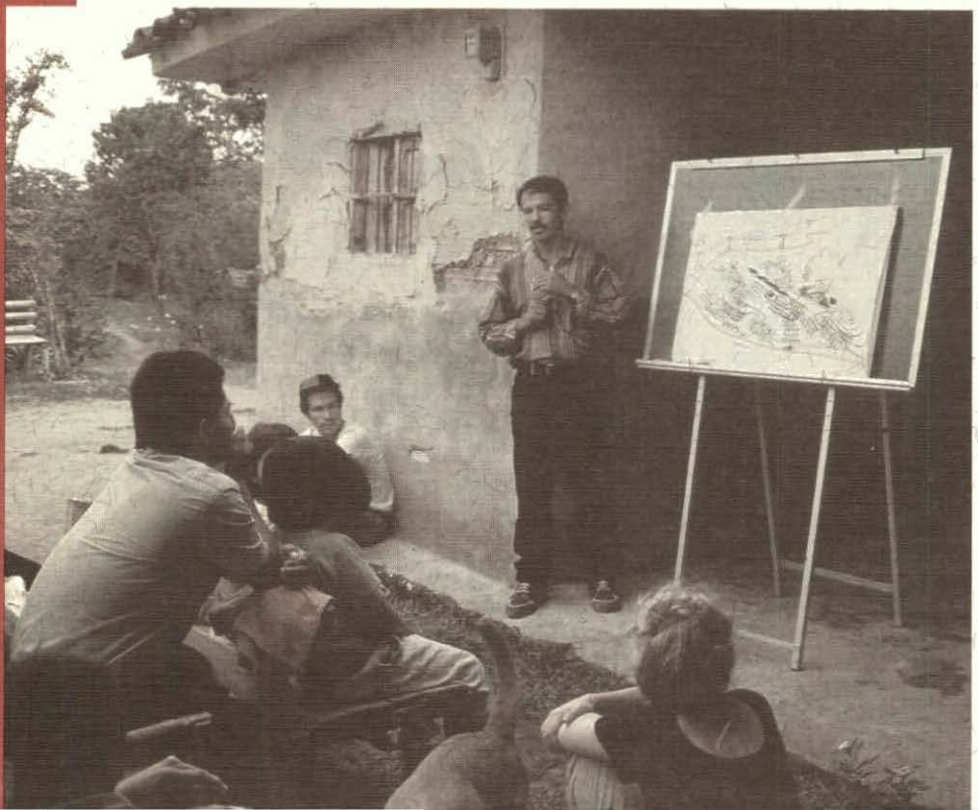
Denmark's support for CIAT has steadily increased in the last several years and has taken various forms.

First, Danida makes a significant contribution to the Center's core budget (see table). In this way the Agency helps cover the costs of our basic scientific capacity and of the services and infrastructure needed to apply it efficiently. As a core donor, Denmark thus has a stake in various CIAT projects and shares in the credit for their achievements in cooperation with national programs.

By supporting the Center's scientific capacity, Danida helps make possible a second form of support, involving special projects. Under some of these, Danish scientists are based at CIAT (see box), serve as members of one of our 16 project teams, and contribute directly to the project's research agenda. There are also Danish scientists at CIAT headquarters working for our sister center, the International Plant Genetic Resources Institute (IPGRI), whose Americas regional program we host.

In another recent case—the Whitefly IPM (integrated pest management) Project—Danida has provided financial support for collaborative research but without the direct involvement of Danish scientists at CIAT.

The recent addition of a Danish scientist to CIAT's Board of Trustees (see box) will help ensure that the Center's strategies and activities are consistent with the principles that



Pilar Guerrero

Denmark's financial contribution to CIAT, 1993-1997 (000 US$)

Year	Core budget	Special projects	Special grants	Total
1993	—	59	—	59
1994	249	74	—	323
1995	725	153	—	878
1996	403	190	1,600	2,193
1997	672	600	800	2,072

Note: Funding for an extension of research on community watershed management and for the CGIAR Systemwide Program on Participatory Research and Gender Analysis (which CIAT coordinates) is pending approval.

guide Denmark's development policy. These matters are also dealt with at twice-yearly meetings of the CGIAR system and through visits of CIAT's director general and other staff to Denmark.

Danish scientists associated with CIAT since 1993

- Lauritz Holm-Nielsen, 1997-, Specialist in Higher Education and Science and Technology, CIAT Board Member
- Helle Munk Ravnborg, 1994-, Rural Sociologist, Community management of natural resources, poverty assessment
- Lisbeth Riis, 1993-1997, Entomologist, Cassava pests

Working for IPGRI

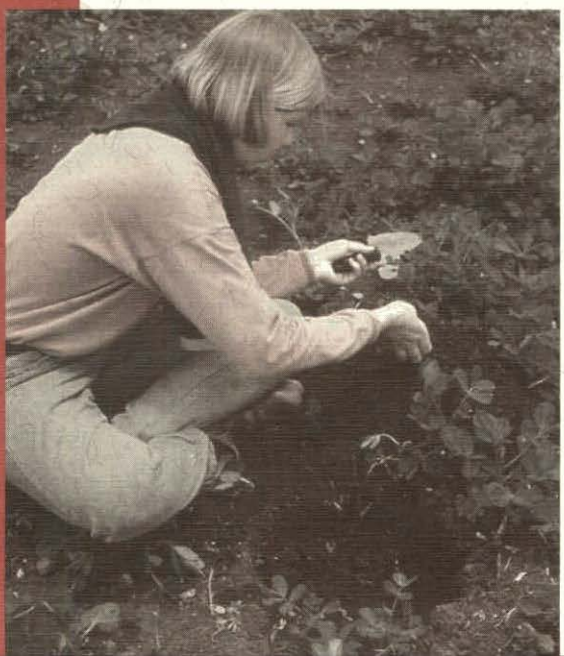
- Mikkel Grum, 1993-1997, Agronomist, Conservation and utilization of native crops
- Helle Knudsen, 1996-, Botanist, Documentation of germplasm collections

Achievements with Danish Support

In the few years since Danida began supporting CIAT, Danish scientists and projects have made valuable contributions to the Center's goals. Some of this work has drawn on our traditional strength in research on crops that are especially important for the poor, while other labors are helping advance our newer initiatives in research on natural resource management.

Understanding an insidious cassava pest

The first project undertaken by a Danish scientist at CIAT targeted the cassava burrower bug, an important subterranean pest of this root crop in tropical America. The bug feeds on the roots by inserting its thin, strong stylet through the root peel into the edible parenchyma. This leaves small wounds and provides an entrance for pathogens. These cause brown spots, which make the roots unacceptable for sale in fresh form and lower their starch content by as much as half. The burrower bug is an insidious pest, damaging the roots without showing any effect on overall crop vigor. As a result, farmers often have no idea the crop has been infested until they harvest and peel the roots.

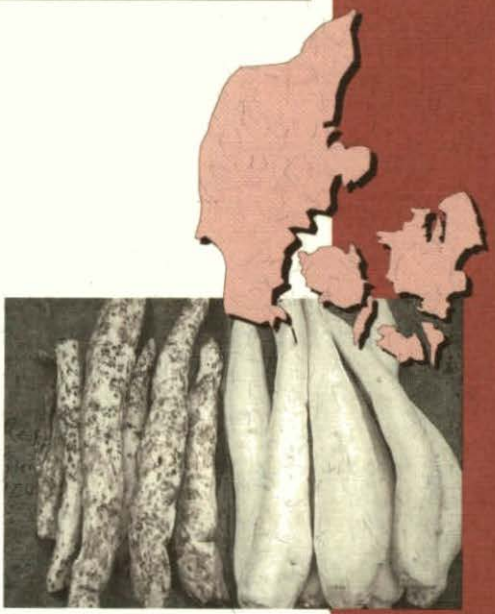


Idea Grum

By reducing the marketability of cassava, the burrower bug erases some of the benefits from a major achievement of cassava research and development over the last decade. This is the emergence of an integrated project approach that empowers farmers to establish, operate, and manage local cassava-based industries. A central purpose of such projects is to raise incomes in rural areas by creating alternative markets for a crop that has traditionally served as a staple food. In areas heavily infested by burrowing bugs, any effort to link farmers to new markets will face a significant obstacle.

Chemical pest controls contaminate soil water and harm fauna, and besides, few cassava farmers can afford to apply them. The first step toward developing more appropriate control methods is to gain an understanding of the pest's behavior and population dynamics. Through laboratory and field trials, a Danish junior professional officer, Lisbeth Riis, conducted her Ph.D. thesis research on the influence of factors such as climate, soil moisture, and temperature. As a result, we now have a good knowledge base for future research.

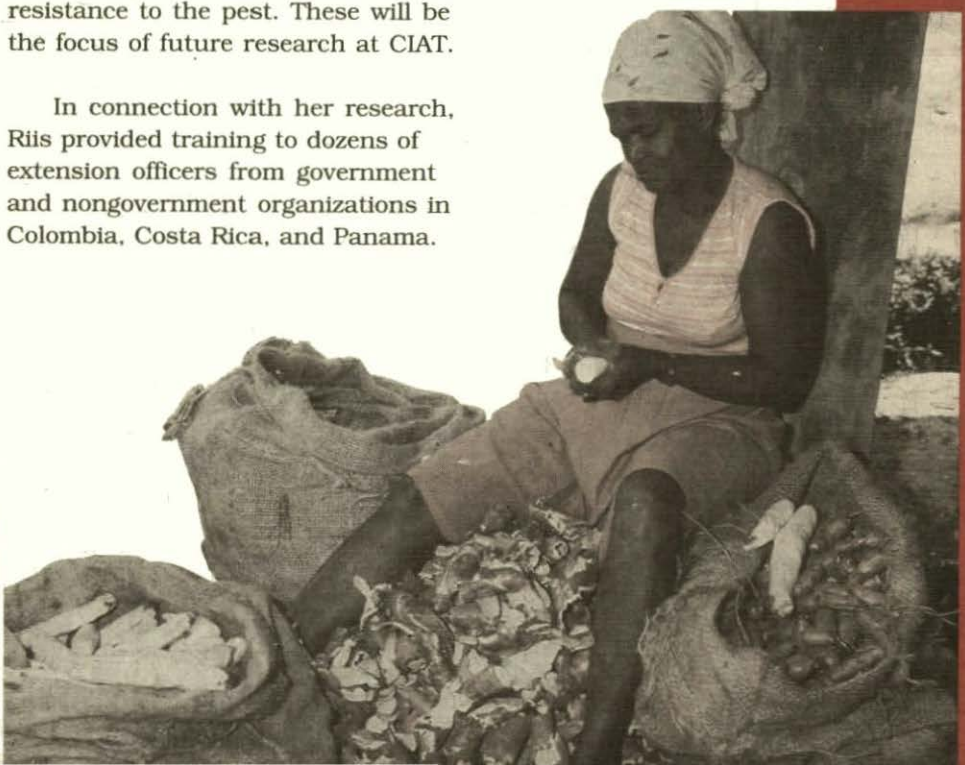
In collaboration with CIAT specialists in geographic information systems, Riis also identified and mapped five types of climates in tropical America where the risk of burrower bug attack is greatest. This information, together with a knowledge of the bug's behavior and potential host plants, will help agricultural extension officers anticipate outbreaks and make appropriate recommendations with respect to crop choice, rotation, and other cultural practices.



Lisbeth Riis

To explore the potential for developing genetic resistance to the burrower bug, Riis studied the effect on the pest of high cyanide content in cassava roots. This is a common trait of the crop, and it is clearly related to reduced propagation of the burrower bug. Riis also identified nearly a dozen low-cyanide, high-yielding clones that show resistance to the pest. These will be the focus of future research at CIAT.

In connection with her research, Riis provided training to dozens of extension officers from government and nongovernment organizations in Colombia, Costa Rica, and Panama.



Mauricio Antorveza

Community management of natural resources

Cassava and its processing are a common feature of the hillside agroecosystem in Colombia and other countries of the Andean zone. Because of the high incidence of rural poverty and environmental degradation as well as CIAT's long history of commodity research in this agroecosystem, it was chosen as one of three environments on which the Center would focus its work on natural resource management.

Land use in the Andean hillsides varies greatly according to agroclimatic, cultural, and other factors. In such a diverse agroecosystem, the challenges of alleviating poverty and improving the management of natural resources transcend the boundaries of individual plots and farms. To make progress at one point often requires collective action by groups of people at another location, with coordinated, well-targeted assistance from local organizations. Yet, institutional support is generally weak and fragmentary in the hillsides, and predominantly poor rural populations are mostly preoccupied with the daily struggle to make a living.

Therefore, a major task for CIAT's research on this agroecosystem is to develop broadly applicable methods for promoting collective efforts to identify and solve problems at the local level. Since 1994 a Danish research fellow, Helle Munk Ravnborg, has been helping us grapple with this challenge. Her research takes place within the framework of a watershed management association, which consists of 16 organizations, working in an area with some 6,500 inhabitants in Colombia's Cauca department.

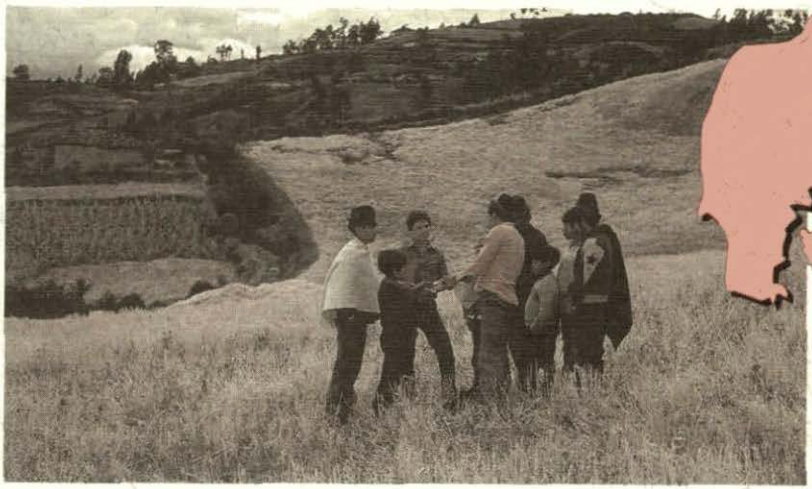
Functions of watershed management associations

Ravnborg's research suggests that, in order to be effective, local watershed management associations must fulfill six key functions.

- First, they must represent all the different groups of people living in the watershed who have a stake in its management. Because these groups often have conflicting interests, to leave any of them out can make it impossible to negotiate acceptable solutions to problems.

- Second, these associations should provide a forum for analyzing diverse interests and negotiating ways to reconcile conflicts. For this purpose the association and its area of operation must be large enough that members can appreciate the consequences of their land management for others and yet small enough that they can establish mutual trust and understanding.

- Third, the associations need to define rules and norms governing the management of natural resources in the watershed. One example is an



Luis F. Pino

In connection with her research on watershed management associations, Ravnborg has tested a variety of methods and techniques that better enable these groups to perform the functions listed in the accompanying box. Both the methods and Ravnborg's insights will help guide future research at CIAT in community management of natural resources.

agreement to preserve buffer zones around natural springs and other ecologically fragile areas.

- Fourth, to provide a sound basis for negotiating such agreements, members of the association need simple but reliable means to monitor the health of the local environment.

- Fifth, because hillside communities desperately need appropriate outside assistance, the associations should provide a mechanism for defining needs, as members perceive them, and for carrying their demand for services to local organizations.

- Sixth, given that resource management has implications for people living beyond the watershed, the association must negotiate with outside interest groups in the hope of reaching compromises that give members stronger incentives to conserve natural resources.

Assessing rural poverty

Through another line of research, Ravnborg has developed a practical method for assessing rural poverty in study areas where small-scale agriculture predominates. To have an accurate profile of rural poverty is vital for planning research or development activities intended to benefit the poor. This information is also essential for subsequently measuring the impact of those activities.

Most approaches to poverty measurement rely on one or a few indicators (such as income), selected by professionals. The method Ravnborg has developed, in contrast, applies a "well-being" ranking technique to gain a fuller understanding of poverty as rural people themselves perceive it. Moreover, the method translates this understanding into a series of quantifiable indicators that can be measured quickly and cheaply over a study area—or even an entire region or country—to give a comprehensive poverty profile.

Ravnborg has tested the method both in Colombia and Honduras, another country where hillside agriculture is prevalent. In addition to measuring poverty, she and her colleagues are gathering information on rural people's management of the natural resources available to them. The result will be a comprehensive package of information—available in the form of a geographical information system (GIS)—that enables us to examine the relationship between poverty and natural resource management. A better understanding of this interface should lead to better designed research projects and better assessments of their impact.

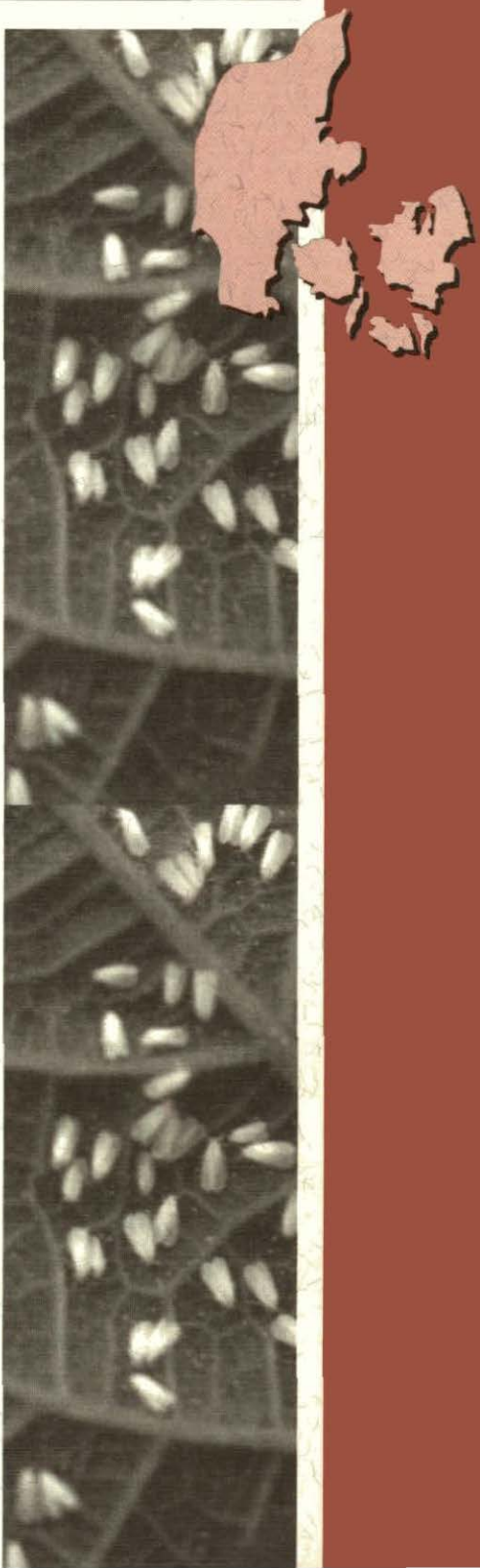
Nathan Russell

Turning back the whitefly menace

The most recent Danida-supported special project at CIAT focuses on the whitefly—a major insect pest and virus vector worldwide—and it features unusually broad research collaboration, involving agricultural institutions around the world.

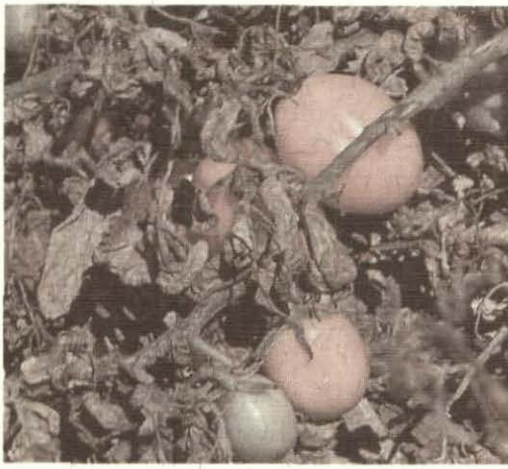
Whiteflies reduce the yields of important crops throughout the tropics and subtropics, undermining food security, robbing farmers of important sources of cash income, and giving rise to the overuse of pesticides. The most important whitefly vector, *Bemisia tabaci*, transmits plant viruses that can cause disease in beans, tomatoes, peppers, squash, cabbage, cotton, and cassava. Often, this results in complete crop loss.

The Whitefly IPM Project, which CIAT coordinates, forms part of the Systemwide IPM Program of the CGIAR. Danida is supporting the project's initial phase, which began in early 1997. Participating scientists have formed a consortium that combines the talents of five international agricultural research



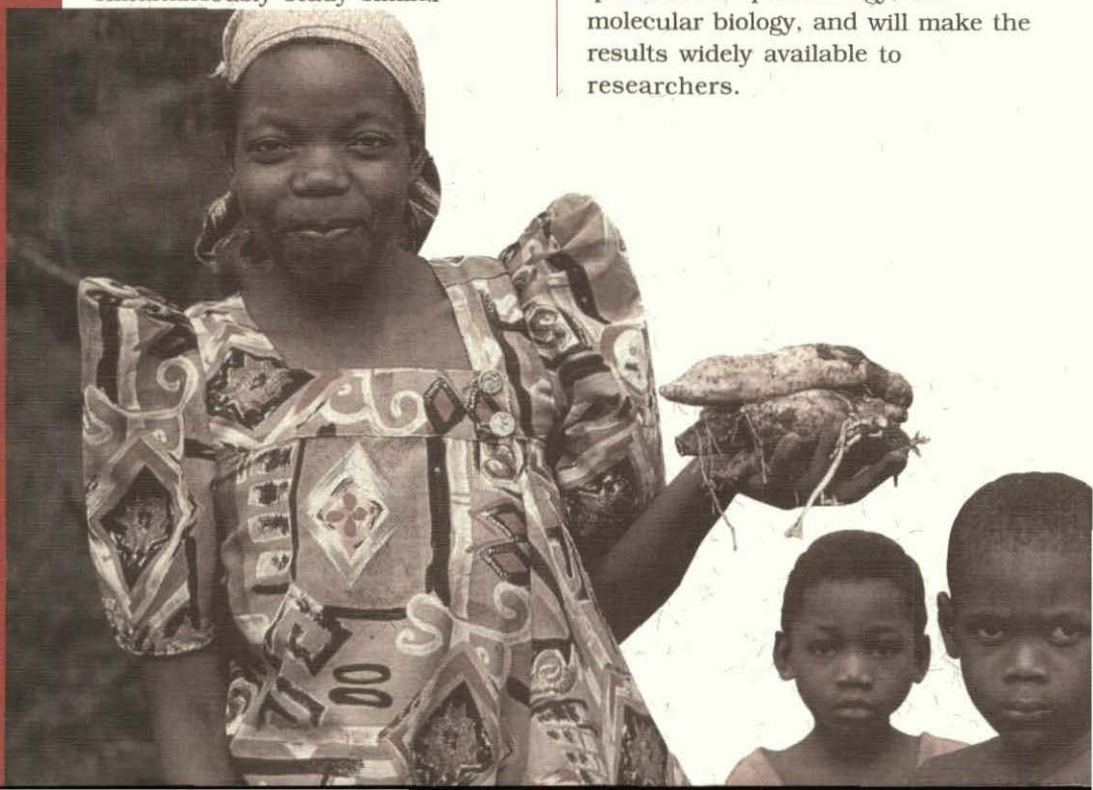
centers, 25 national and regional research programs in Latin America and Africa, and basic research institutions in the USA, UK, and Germany.

As a first step in turning back the whitefly menace, the international research consortium is establishing a global network, facilitated by electronic mail and the World Wide Web, to coordinate the research. Many scientists already share information about their particular disciplines in this way. But the Whitefly IPM Project will go beyond information exchange to set up a collaborative research agenda that enables specialists in two hemispheres to conduct and compare research results across crops, disciplines, and national boundaries.



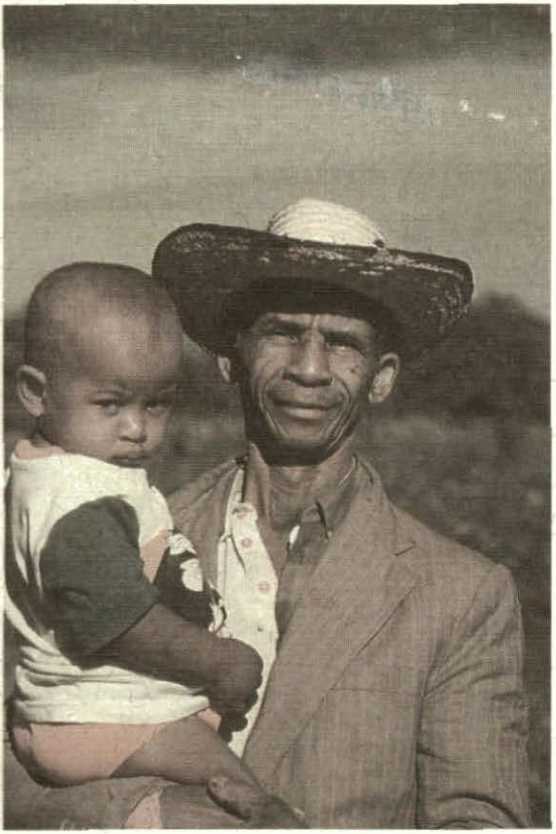
David Mowbray

problems caused by whiteflies in different geographic regions—from Latin America's tropical highlands and the lowlands of Central America and the Caribbean to the highlands of Eastern and Central Africa. The project will take advantage of modern tools, such as GIS, quantitative epidemiology, and molecular biology, and will make the results widely available to researchers.



David Mowbray

Closer Ties



David Mowbray

Through special projects and the work of Danish scientists at CIAT, we are developing close ties with research institutes in Denmark, such as the Royal Veterinary and Agricultural University and the Center for Development Research. These connections provide a strong scientific foundation for future Danish collaboration with CIAT, which will better enable both of us to fulfill our shared commitments.

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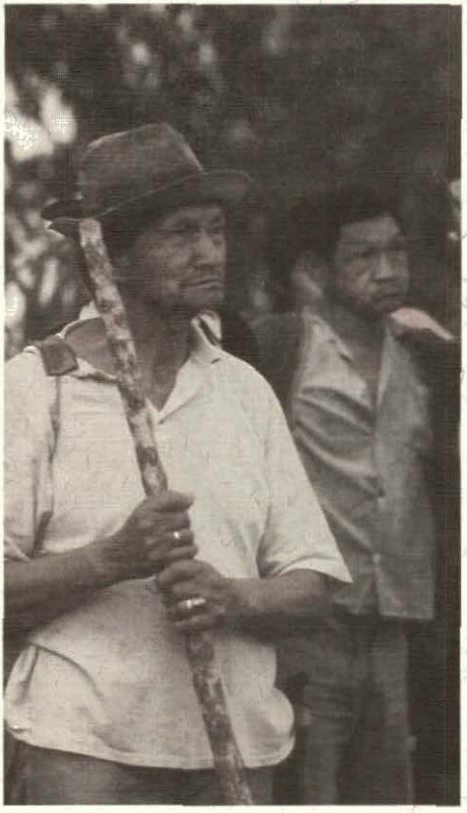

This publication is one in a series of documents about CIAT's relationships with its donors and research partners. The purpose of these documents is to present key facts about our cooperation and to describe its focus, directions, and mutual benefits.

September 1997

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